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10/706,360	11/12/2003	Barbara Liskov	279423	6805

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EXAMINER	
PHAN, TUANKHANH D	
ART UNIT	**PAPER NUMBER**
2163	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/706,360	LISKOV ET AL.	
	Examiner	Art Unit	
	TUAN-KHANH PHAN	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2 and 4-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Request for Continued Examination, file on 9/02/2008, has been entered and acknowledged by the Examiner. Claims 1-2 and 4-23 are pending in the instant application.

Response to Arguments

Applicant's arguments with respect to claims 1-2 and 4-23 have been considered, but they are not persuasive.

Issue I. Applicant argues that Burbeck does not describe three way bindings. Instead Burbeck describes a two way binding that facilitates identifying a peer that may move around in a peer to peer network. Burbeck describes a two way binding at column 12, lines 7-43. The two way binding includes an IP address of the peer, a date, a time, and a domain. The two way binding does not include a client device identifier. Thus, the two way binding in Burbeck can not possibly facilitate maintaining session state between a client device and a replica of a networked application. Srivastava does not cure the defect of Burbeck. Additionally, Burbeck can not be modified to include the device identifier because there is no concept of a device identifier in the type of peer to peer networking described in Burbeck. The peers in Burbeck are free to migrate around a network, and thus paths between peers are dynamic. This makes Burbeck incompatible with the concept of three way bindings and thus not combinable with any reference that discloses three way bindings, if any such reference exists.

Response I. The Examiner would like assert that Burbeck includes, if a three-way binding means there exiting a mediator between two parties as shown in Figure of claimed invention, a web service that affect services between a P2P (col. 6, lines 40-47; i.e. **having servlets called routers**, col. 9, ll. 1-5),). Plus, a node of Burbeck equivalently has an identifier such that when reentering the network it is recognized (abstract, persistent identifier with reputation information). Thus, Applicant's argument is not persuasive.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2 and 4 -24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims (1 and 21) contains "three-way" which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Although the Applicant has stated that Figure 3 shows a record from a database of three way bindings, it merely shows a block diagram of records in a routing node of a sticky database. Accordingly claims 2, 4-20 and 24 are also rejected as being dependents of claims 1 and 21.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burbeck et al. (US Pat. 7,143,139), hereinafter Burbeck, and further in view of Srivastava (US Pat. 7,047,315).

Regarding claims 1 and 21, Burbeck discloses a method comprising:

providing in a router a database of three-way bindings of client devices (i.e. **binding or selecting a persistent node identifier and reputation information then assigning to each network participant so that the node identifier can be identified and connected to the associated database**, col. 4, ll. 60-67) to network applications to replicas of network applications, where the session includes a session state, a three way binding includes a binding expiration time (i.e. within a configurable time interval allowed, col. 3, line 25), and where the router is a first router of a plurality of routers associated with a network in which the network applications run (col. 9, ll. 1-5; data base and web-service associated with the storage, col. 5, ll. 45-55; col. 4, ll. 1-4);

maintaining a change log of records entered into the database, where a change log entry having a change event generated by the first router and an event number sequential to an event number of a preceding change event in the change log (i.e. the gossip monger manages and stores reputation information as meta-data to update any

change overtime include routing paths and events of each node and associated data, col. 11, ll. 15-26);

maintaining a current version vector associated with the database and the change log, the current version vector entry for the first router being a most recent event number from the change log (**the gossip monger manages and stores reputation information as meta-data to update any change overtime include routing paths and events of each node and associated data,** col. 11, ll. 15-26), the current version vector entry for each other router being a most recent event number received at the first router from that other router (col. 11, ll. 15-26); receiving an update of change events generated at another router in the plurality (i.e. **routing paths and events/interaction history of nodes having metadata-data includes current vector entry and refresh/update information gathered,** col. 11, lines 15-26); reconciling the current version vector according to the received update (col. 3, ll. 40-48); and reconciling the database according to the received update such that the client session is maintained (abstract); and

providing a consistent DNS binding to a set of related application connection requests from a client device, where the set of related application connection requests request access to a network application having multiple replicas in a distributed network environment, and where the set of requests are associated with a single session established between the client device and a single replica of the network application (abstract).

While Burbeck concentrates heavily on peer-to-peer network with a router and server, the lack of plurality of servers could be combined. Srivastava discloses a plurality of routers (abstract) that also allow client identifiers to be bind with server/router identifiers (replicas) (col. 4, ll. 59-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the plurality of routers/replicas mapping taught by Srivastava into the above teachings of Burbeck in order to maintain a consistent flow of data and provide a fast-switched over a path to the intended replica so that network overhead and bandwidth are reduced (col. 6, ll. 50-55).

Regarding claim 2, the method of claim 1, Burbeck further discloses wherein the client device is identified by an Internet Protocol address, where a single replica of the network application is identified by an IP address, and where the network application is identified by a domain name system name (col. 1, ll. 38-56).

Regarding claim 4, Burbeck further discloses the method of claim 2 where the client identifier is associate with a dproxy Internet Protocol address (Figure 17A; col. 1, ll. 38-56).

Regarding claim 5, the method of claim 1, Burbeck further discloses wherein the step of reconciling the current version vector comprises the steps of: comparing a least recent event number of the router that generated the update to the event number in the current version vector entry, for that router (i.e. **updating and storing content traversal path definition as well as reputation information as appropriate,** col. 23, ll. 30-55); if the least recent event number is in series with the event numbers in the

database as determined by the current version vector entry for that other router, then entering the most recent event number of the received update into the current version vector (**the gossip monger manages and stores reputation information as meta-data to update any change overtime include routing paths and events of each node and associated data,** col. 11, ll. 15-26) entry for the router that generated the update of change events (col. 23, ll. 30-65); and if the least recent event number in the update is not in succession to the event number in the current version vector entry for the router that generated the update of change events, then discarding the received update (col. 23, ll. 30-65).

Regarding claim 6, the method of claim 5 Burbeck further discloses wherein the step of reconciling the database further comprises: if the update was not discarded in the step of reconciling the current version vector, then for each entry of the received update, a) determining whether the received entry has expired (col. 3, ll. 5-45); b) if the received entry has expired, then discarding the entry (col. 3, ll. 5-32); c) if the received entry has not expired, then comparing the request identifier of the received entry with the request identifier in the entries in the database (i.e. **encompassing the response to node's version of its reputation before the failure to satisfy the content request if the time interval expires,** col. 3, ll. 5-32); d) if a matching entry is not found for the received entry, adding the received entry to the database (col. 3, ll. 5-32); e) if a matching entry is found for the received entry, then comparing the application identifier of the received entry with the application identifier of the matching entry (col. 3, ll. 5-32); f) if the application identifiers match, then retaining the entry having a later expiration

time in the database (col. 30); and g) if the application identifiers do not match, then retaining an entry selected based on a deterministic function applied to a portion of each entry (abstract; col. 3, lines 5-52, col. 28).

Regarding claim 7, Burbeck further discloses the method of claim 6 wherein the step of retaining an entry based on a deterministic function comprises the steps of applying a function to the application identifiers (col. 23, ll. 30-65); and selecting an entry based on the outcome of the function (col. 23, ll. 30-65).

Regarding claim 8, the method of claim 6, Burbeck further discloses wherein the step of retaining an entry based on a deterministic function comprises the steps of applying the deterministic function to the request identifier (abstract, mapping applications of client to the server) and selecting an entry based on the outcome of the deterministic function (col. 23, lines 30-62).

Regarding claim 9, the method of claim 1, Burbeck further discloses comprising the step of deleting a binding from the database when the expiration time for the binding has been exceeded (col. 23, ll. 30-62).

Regarding claim 10, the method of claim 1 and Burbeck further discloses comprising the step of sending a request for an update of change events to another router in the plurality (col. 23, ll. 30-65); and the step of receiving the update further comprises receiving the update in response to the request (col. 23, ll. 30-65).

Regarding claim 11, the method of claim 1 and Srivastava further discloses further comprising the steps of: periodically generating a first router update of change

events (col. 14, ll. 30-49, col. 31); and, transmitting the first router update of change events to at least one other router in the plurality (col. 14, lines 30-49; col. 31).

Regarding claim 12, the method of claim 1 and Srivastava further discloses comprising the steps of: affirming that an update has been received from each router of the plurality within a predetermined period for each router (col. 14, ll. 30-49; col. 31); if an update has not been received from a router within the predetermined period for that router, requesting an update of change events from that router (col. 14, lines 30-49; col. 31); and if an update is received in response to the request, reconciling the current version vector according to the received update (col. 14, lines 30-49; col. 31); and reconciling the database according to the received update (col. 14, lines 30-49; col. 31).

Regarding claim 13, the method of claim 5 and Srivastava further discloses wherein the step of reconciling the database further comprises the steps of: determining from the received update whether the database has a complete record of changes based on the current version vector (col. 14, lines 30-49; col. 31); if the database does not have a complete record of changes, requesting a replacement database from a router of the plurality of routers (col. 14, lines 30-49; col. 31).

Regarding claim 14, the method of claim 1, Srivastava further discloses, further comprising the step of transmitting a copy of the database and the current version vector to another router of the plurality of routers in response to a request from the other router (col. 14, lines 30-49; col. 31)

Regarding claim 15, see the discussion of claim 1 and Burbeck further discloses wherein the computerized device fails temporarily and recovers, the method further

comprising the steps of: writing the first router change log to a persistent storage device (col. 23, ll. 30-60); sending an update of change events written to the change log in the persistent storage device to other routers in the network (col. 23, ll. 40-60); after recovering from failure, requesting a database and an associated version vector from one of the routers in the plurality (see discussion of claim 1); col. 31); retaining the received database and associated version vector (abstract); reconciling the received database with the change log from the persistent storage device (col. 13, ll. 25-45; col. ll. 30-49); and updating the received version vector (col. 13, ll. 25-45).

Regarding claim 16, the method of claim 1 and Burbeck discloses wherein the received update includes a version vector and the method of maintaining a current version vector further comprises the step of maintaining the current version vector in a version vector table including past version vectors (col. 13, ll. 25-45).

Regarding claim 17, Burbeck discloses the method of claim 16 further comprising the steps of: determining from the version vector table whether the database is current based on the version vector table (col. 13, lines 25-45; col. 23, ll. 40-60); and if the database is not current, then requesting missed change events from a second router in the network (col. 28, lines 1-10).

Regarding claim 18, Burbeck discloses the method of claim 17 wherein each router caches updates received from other routers in the plurality, the method further comprising the step of (abstract): if the router that generated the received update does not respond to the request for missed change events, requesting the missed change events from a second router of the plurality and reconciling the change events into the

database and current version vector. It is inherent that since record is periodically ingress update in the table and storage, any miss change of events will be updated entirely upon next update event (col. 23, ll. 40-60).

Regarding claim 19, the method of claim 1 and Burbeck discloses wherein the computerized device fails temporarily and recovers, wherein the step of maintaining a current version vector further comprises the steps of: creating an epoch timestamp from a clock of the computerized device to mark a recovery period (col. 12, ll. 5-20); entering a value pair to the current version vector for the first router, the value pair being an event number and the epoch timestamp (col. 12, ll. 5-35); and the method further comprising the step of after recovery, requesting a database copy and associated version vector from one of the other routers in the plurality (see discussion of claim 1).

Regarding claim 20, Burbeck further discloses the method of claim 19 further comprising the steps of: determining whether a pre-selected time period has passed (col. 3, 25-35); and deleting value pairs before a most recent value pair from the current version vector having timestamps created before the pre-selected time period (col. 11, ll. 15-40).

Regarding claim 22, Burbeck discloses the system of claim 21 wherein the network interface is configured to receive an update of change events for the database from another router in the plurality of routers in the network; and the controller is further configured to reconcile the database according to the received update and to update the current version vector in response to reconciling the database (col. 11, ll. 15-40).

Regarding claim 23, Burbeck discloses the system of claim 21 wherein the controller is configured to transmit periodically, to at least one of the other routers in the plurality, an update of change events and the current version vector (col. 11, ll. 15-26). Regarding claim 27, Burbeck discloses the method of claim 26 wherein the router is a DNS server and wherein the application identifier in the request is a domain name and wherein the step of routing comprises mapping the request to an Internet Protocol address of the one replica (abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUAN-KHANH PHAN whose telephone number is (571)270-3047. The examiner can normally be reached on 4/5/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TKP

/don wong/
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